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Title: The totally nonnegative Grassmannian and juggling patterns

Abstract: The common refinement of all the Bruhat decompositions of the Grassmannian is generally regarded as pathological; while the strata can be loosely indexed by matroids, they can have arbitrary singularity type (or be empty). In a widely circulated prepreprint, A. Postnikov discovered that the common refinement of only the cyclic shifts of the Bruhat decomposition is much better behaved, and gave many ways to index the strata.

I'll explain a new way, in which the strata are indexed by bounded juggling patterns. This suggests a connection to the affine Weyl group (of unbounded juggling patterns), and indeed, I'll show how to trace Postnikov's stratification to the Bruhat decomposition on the affine flag manifold. Then I'll describe work in progress on the geometry of the closed strata.